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## 120. IS Strategy Formulation in a Financial Services Company: The Dual Lens Approach

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### Abstract

*This paper presents a method for information systems (IS) strategy formulation that is suitable for SMEs. The method involves the merging of insights and determinations from two complementary perspectives on the future IS needs of an SME, and hence the name "Dual Lens Approach". One of the perspectives is strategic and top-down, while the other perspective is focused on business process analysis and modelling, and tends to be more bottom-up in its approach and viewpoint. A case study describing an application of the method is also presented. The case study gives an insight into the issues involved in using the method in practice.*

**Keyword:** Information Systems strategy, SMEs, Business Process Analysis, Cognitive Mapping

### Introduction

Information systems (IS) strategy formulation is an established process in most contemporary large organisations (Marshall & McKay, 2004). However, this is not the case in small and medium-sized enterprises (SMEs) where there is generally a lack of reflective and considered enterprise-wide planning of IS investments (Blili & Raymond 1993, Levy & Powell 2000). This results in SMEs having fragmentary IS portfolios that are not well integrated nor aligned to the strategic goals of the organisation (Ward & Peppard 2002, Levy & Powell 2005).

Part of the problem is that more generally management in these businesses does not understand the role, nature and importance of effective decisions regarding IS investments (Levy & Powell 2000, Hagmann & McCahon 1993). Another aspect of the problem is the lack of an effective IS strategy formulation method for SMEs (Levy & Powell 2000). What is required is one that is more simple and straightforward than those used in large companies (Blili & Raymond 1993, Levy & Powell 2000). As a contribution toward determining such a method, this paper reports on the first round of an action research program designed to develop and apply a new, and potentially effective, IS strategy formulation method to determine the set of required and desirable information systems in SMEs in Australia.

### Background

This section will begin with a brief explanation of the characteristics of SMEs that sets them apart from large organisations. It will then review literature related to IS strategic planning in SMEs. From this it will proceed to describe the concept of the proposed Dual Lens approach to determining an IS capabilities portfolio in SMEs.

While on the surface SMEs might be dismissed as of little consequence, in fact they cannot be

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ignored. In industrialised countries worldwide, SMEs are major contributors to the economy (Burke & Jarratt 2004, Jocumsen 2004, Tse & Khaled 2003). Further, they are generally regarded as central to economic growth and innovation (Guimaraes 2000, Wong & Aspinwall 2004). Even though they play a crucial role in the health of the economy many of these organisations fail, and more often than not, the blame is laid at their inability to have a strategic focus and to carry out appropriate business planning (Perry 2001, Jocumsen, 2004).

Small businesses have special needs. There is a considerable body of knowledge that has supported the contention that SMEs must be seen as distinct from large size organisations (Hussin et al 2002, Riemenschneider et al 2003, Beaver & Prince 2004, Culkin & Smith 2000). Indeed, they have been described as significantly different from large companies (Hussin et al 2002, Riemenschneider et al 2003). Beaver and Prince (2004:35) have proposed that SMEs have 'special characteristics, operating contexts and qualities' that implies their behaviour is unlike that of large organisations (Culkin & Smith, 2000). According to Blili & Raymond (1993), the problems encountered by smaller firms are different from those encountered by large firms, and require different managerial approaches. From a strategic and administrative point of view, SMEs are mainly organic in nature and structurally they are informal with minimal differentiation among units. They can be seen as an extension of the personality of individual entrepreneurs and typically they lack resources in terms of financing, planning, control, training and information systems (Blili & Raymond, 1993).

The lack of resources and issues such as an uncertainty regarding IT, competition and the limited knowledge of owners are a number of key differences between SMEs and large companies. These are believed to influence the attitude in SMEs towards IS strategy planning. It would appear that in a majority of SMEs there is a lack of IS/IT strategy formulation (Levy & Powell 2000). When it does occur, it is more often done on an informal basis and not aligned with the business goals of the organisation (Beheshti 2004, Kyobe 2004, Hagmann and McCahon 1993).

While SMEs do not generally engage in IS strategy planning, information technologies demand a long-term commitment from the SME. They require substantial investment, and the strategic importance means that the choice must be made with strategic objectives in mind. (Blili & Raymond 1993). It has been found that the profitability of SMEs can be adversely impacted by poor IS investment decisions (Love et al 2004) yet often management lack understanding of the nature and importance of effective decisions for IS investments. The lack of a reflective and considered enterprise-wide planning of IS investments in SMEs can have severe negative consequences. It can, among other things, lead to fragmentary IS portfolios that are not well integrated or aligned with the strategic goals of the business (Ward & Peppard 2002). IS must not only be an integral part of the business strategy, IS investments and the business operations should be strategically synchronised (Love & Irani 2004, Croteau & Raymond 2004, Ward & Peppard 2002).

It is nevertheless imperative to adopt some kind of framework for planning information technologies (Blili & Raymond 1993). Given it is the specificity of SMEs that may have a particular effect on the development, introduction and use of strategic information systems (Blili & Raymond 1993), one would expect that an effective IS strategy formulation method for SMEs to foster their engagement with IS strategy might differ in significant ways from approaches used in large organisations.

Previous IS strategy research has indicated that most methodologies presently available were designed with large firms in mind, and, being quite inflexible, energy consuming, and

expensive, are not at all suitable for smaller firms (Blili & Raymond 1993, Levy & Powell 2000). A strategic approach should lead to more flexible and less costly methodologies, formulated and adapted to the demands and specificity of SMEs.

It is clear from the above that there is a need for better IS strategy formulation in SMEs. These businesses need an approach that is much more simple, robust and flexible than what is used by large enterprises. (Blili & Raymond 1993).

Given the importance of IS strategy to SMEs, this current research endeavours to develop a methodologically rigorous and also, crucially, an operationisable IS strategy formulation method for the SME context. It is proposed that this will have the benefit of theoretical insights from the management and strategy domains, and practical insights from the action research process of engaging with an Australian SME.

### **A simple Dual Lens approach to determining an IS portfolio in SMEs**

Blili & Raymond (1993) proposed that there were two basic approaches to IS strategy formulation. Each requires a different type of analysis: a bottom-up approach and a top-down approach. Initially, they determined that the top-down approach was most fitting in the SME context, given that this approach allows IT to be identified as a strategic priority throughout the entire organisation. Further work by Levy & Powell (2000) determined that the extension of this 'outward' looking focus on organisational competitiveness, to include an internal review of the organisation to improve efficiency and effectiveness was needed. It is this extended view of the approach to IS planning that the authors of the research presented in this paper have adopted as a guide to determining a simple, yet robust approach to IS planning in SMEs. Our research endeavours to develop a method that reviews the organisational needs from a top-down strategic perspective and complement these with the organisational needs from a bottom-up business process review.

Specifically, a fundamental requirement of the IS investments in a company is that they are targeted to support the strategic goals of an organisation. That is, they are synchronised with the business strategy. To ensure this, we need to make sure that appropriate deliberations take place in the senior management team of the organisation. These should have as their focus the evolving of IS capabilities that are needed to support the attainment of strategic goals. Deliberations should ensure that a set of information systems (or an information systems portfolio) has been determined such that the attainment of each of the strategic goals of the organisation will be suitably supported. However there will still be a need to make certain that the business processes of the organisation are efficiently and effectively supported by information systems. A set of information systems that adequately enables the achievement of the organisation strategic goals, however, does not ensure that the business processes within the organisation are adequately supported. There may still remain unacceptable, inefficient business processes within the organisation. These inefficiencies can involve having poor process logic and inadequate information systems support with subsequently unproductive workarounds. Thus, we recommend that the organisation also needs to undertake a high-level business process analysis to determine what type of new information systems are needed to ensure business process efficiency and effectiveness.

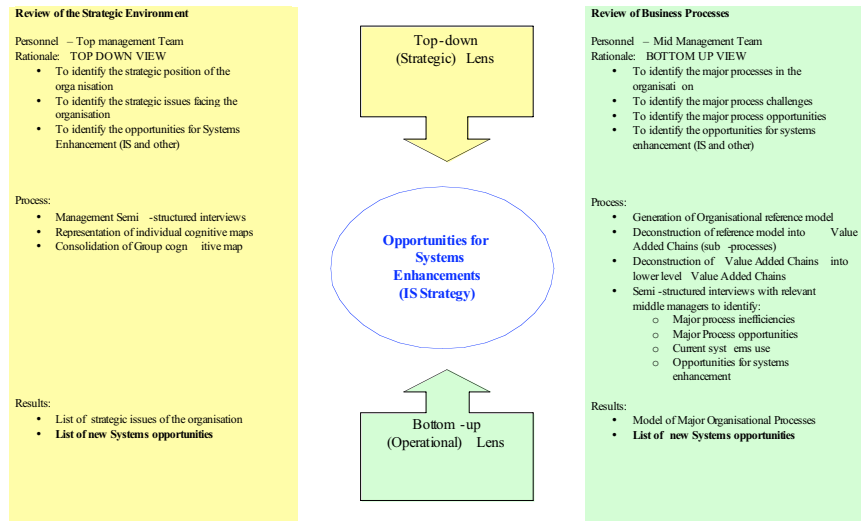
The complementarity of the two perspectives is expected to provide a more holistic view of the organisation's required IS portfolio for the future. The first step is 'top-down', coming from considerations of business strategy down to the determination of needed information systems. The second step is 'bottom-up', coming from a consideration of business process activities up

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to a determination of the information systems necessary to ensure efficient and effective processes. The information systems strategy formulation method for SMEs consisting of these two steps is depicted in Figure 1 below. As it clearly shows the two viewpoints are essentially different lenses on the same problem: that is, what is the required future set of information systems investments for this organisation? Ideally the two perspectives should result in the same set of required information systems. However, if this does not happen then different systems might be necessary to fulfil the information systems requirements for each perspective. The required future information systems portfolio is therefore attained by complementing the strategic IS needs (top-down) with the operational IS needs (bottom-up).

Figure 1: The Dual Lens Information Systems Strategy Formulation Method for SMEs



To complete the information systems strategy, a business case consisting of a business rationale for the information systems, together with a broad cost/benefit analysis, is prepared for each proposed information systems investment. The information systems strategy then consists of the future information systems portfolio and the rationale for the choice of the information systems investments, together with a business case for each information system. A document consisting of the arguments for the information systems portfolio together with the business cases should then be presented to the board of the company for the necessary and appropriate decisions to be taken.

### Lens 1: Review of the Strategic Environment (Top-down)

A review of the strategic environment is an imperative element of any IS strategy development process, regardless of the size of the business. However Bili & Raymond (1993) advocated a process that is simple and operationisable in the SME context. Levy & Powell (2000) have indicated that tools previously developed in large organisations can also be applied to the SME context, such as the Balanced Scorecard (Kaplan & Norton 1996), Critical Success Factors (Boynton & Zmud 1984), PESTEL (Levy & Powell 2000), the Information Intensity Matrix (Porter & Miller 1985) and Porter's competitive forces. They also note however that these tools do not take into account the inherent simplicity required by SMEs to operationalise the IS strategy process.

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With this in mind, we have determined a simple method of collecting and representing appropriate strategic information from the top-down perspective. The Lens 1 top-down approach is the determination of required information systems through the examination of the strategic goals of the organisation. If the organisation has a formal business strategy, then the strategic positioning and the strategic goals of the organisation are reviewed and clarified. If no formal and up-to-date business strategy is to hand, then a set of strategic goals is determined. Given a set of strategic goals, senior management deliberations should then take place to identify the required information systems to support the attainment of these strategic goals.

The method that is suggested for determining both the strategic goals of an organisation and the enabling information systems is the cognitive mapping approach (Ackerman & Eden 2005, Bryson et al 2004, Eden & Ackerman 1998). In the late eighties and early nineties Eden and his colleagues explained how to utilise cognitive mapping techniques in determining a set of strategic goals. They called their approach SODA, for Strategic Options Development and Analysis (Eden 1989, Ackermann 1992, Eden & Ackermann 1992). In the Dual Lens approach, we have adapted SODA/Cognitive mapping to the determination of IS strategy. Specifically, a set of interviews is carried out with the senior management team. These interviews are focused on the business environment of the organisation, the strategic goals and business strategy. From this process the management team are facilitated to identify the type of information systems required to enable and support the business strategy. Cognitive maps are prepared for each of the interviews, and then validated with each of the managers concerned. These individual cognitive maps are then merged by the researcher and are used in a facilitated group session with the senior management team to negotiate a shared understanding and shared agreement on the strategic goals and the supporting information systems. Cognitive mapping as a support tool for IS strategy is issues and problem focussed. This should suit SME managements more than a procedure that is formal and abstract and based on some form of theoretical model. It is a skill that is easily learned and is supported by software. It could thus be carried out by a staff member or it could be facilitated by a consultant.

Clearly, the above process needs to be carried out with the top management team of the organisation. These are the persons who are responsible for both the setting of the strategic goals of the company and the attainment of these goals. They are also, thus, responsible for the investment of appropriate resources to enable and hopefully ensure such an attainment. One of the sets of investments that are a responsibility of the top management team is the set of information systems investments. As has been pointed out in many studies (e.g. Ward & Peppard 2002) the determination of information systems investments is a senior management responsibility and not an IT responsibility. This needs to be very clearly spelled out in SME contexts where there is, very often, no established process for information systems strategy.

### ***Lens 2: Review of the Business Process environment (Bottom-up)***

It has been shown that insight into the process environment of an organisation can be used to guide the selection of supporting information systems (Levy & Powell 2000). Specifically, Tam et al (2001) have proposed that business process analysis (BPA) can be used to identify appropriate software packages and inform the selection of an appropriate IS portfolio in that it allows the matching of the enterprise model with standard software packages. In 2000, Levy & Powell (2000) determined that the inclusion of a bottom-up or operational focus to IS strategy formulation in SMEs was appropriate and they determined that the second stage of the process should be to model the current business processes in the organisation using Value Chain Analysis, Soft Systems Methodology, and the McFarlan McKenney strategic grid. Levy &

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Powell (2000) reported that the usefulness of these tools proved to be variable given that they were developed for large organisations and dependent upon the understanding of the available tools.

While recognising the value of complementing the top-down analysis with a bottom-up view, we have determined to use a more simple tool to collect and analyse the operational IS requirements. The second element of our Dual Lens approach to IS portfolio development considers the business process activities of the organisation in order to determine the information systems necessary to ensure efficient and effective operation of these processes. The Lens 2 bottom-up approach is the determination of required information systems through examining the efficiency and effectiveness of the business processes of the organisation. This is done via a high-level and broad-based business process analysis and modelling exercise. Thus, whereas Lens 1 looks outside the organisation at the strategic positioning of the organisation in its business environment, Lens 2 looks inward at business process productivity.

The first task in the Lens 2 exercise is the creation of an enterprise-wide core process map. In this map the core or central processes of the organisation are modelled. Since there is no scientific way to factually determine the core process map, determining such a map is a creative social process and many conceptualisations are possible (Marshall et al 2005). Each of these conceptualisations is equally valid but some conceptualisations are more useful than others for the task at hand. Given that, for a core process map, an overall view of the organisation's operations is necessary together with an informed view of the organisational mission, the task of creating a core process map and choosing the most useful conceptualisation is best done by the senior management team of the organisation.

Each of the processes in the enterprise-wide core process map is then analysed and modelled. In this process each business process is deconstructed into sub-processes which consist of sets of sequential activities including branching and joining sequences. At this level, senior management must start involving operational personnel in the process, as such personnel are closer to the process activities and hence are more likely to have more informed views of the process activities and their logic.

The objective of the process analysis and modelling exercise is to determine the information systems that are necessary to the future efficient and effective operation of the business processes being examined. This objective must remain in focus, and the exercise must not become one of building precise operational models of business processes. Thus, those carrying out the business process analysis must be vigilant in spotting inefficiencies emanating from both current inadequate systems and from a lack of any appropriate system support. The endpoint of the analysis and modelling, as has been mentioned above, is to build business cases for new information systems. These cases will include evidence of business process inefficiencies.

The above analysis may well result in determining the same set of needed information systems as the strategic analysis in Lens 1. However, there may be differences and this makes Lens 2 a useful complementary exercise to Lens 1. It may well be that Lens 2 identifies the need to a system that is not involved in enabling the attainment of strategic goals, and hence was not identified in the Lens 1 exercise, but will result in considerable efficiencies and cost savings for a particularly unproductive and inefficient process. In this way, Lens 2 helps to build a complete set of necessary and useful information systems investments of the organisation.

### ***The Dual Lens view of the IS portfolio requirements***

Thus two complementary approaches to determining the future IS portfolio have been presented. The combination of the two processes provides a broad list of information systems that are required to address both the strategic and operational requirements of the organisation.

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### **The Dual Lens Applied: FINSERV**

The above determination of the Dual Lens approach to IS Strategy formulation in SMEs is the first phase in an Action Research project. The first phase has included the theoretical development of the Dual Lens approach and the application of this approach in one Australian SME.

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FINSERV is a long-established regional company that provides financial products and trustee services in Australia. It currently has over \$1.2 billion in funds under management on behalf of personal, business and wholesale investors, as well as approximately \$750 million of trust assets under management.

FINSERV employs 83 staff, thus fitting squarely in the Australian definition of a medium-sized enterprise (ABS, 1999). Staff are located in seven branches and offices in the major population centres across Tasmania. The organisation is structured around four Divisions, these being:

- Distribution Division (operates the sales and service network);
- Asset Management Division (manages and monitors all assets and investments);
- Corporate Services Division (provides support services such as compliance and legal, taxation and accounting, human resources and information technology); and
- Marketing Division (provides product, pricing, promotional and customer communication support).

In early 2005, FINSERV approached the researchers to assist the company in developing an IS/IT strategy. FINSERV's wish was to "bring basic infrastructure up to scratch", getting the small team of IT professionals "out of the trenches" and assisting the company to "develop a more strategic focus" to their IT operations.

Information Systems staff within FINSERV had expressed a wish to "to adopt a best practice approach to our IT strategy" development process, and requested that the researchers assist with this project.

### ***Lens 1 in FINSERV: Review of the Strategic Environment (Top-down)***

In undertaking a strategically-oriented, or top-down review of the organisational IS requirements, the research team carried out interviews with the top management team at FINSERV. The business strategy and strategic goals for the organisation were reviewed, expanded and updated. Then the managers were asked to consider and evaluate whether IS support was adequate to support the achievement of the goals. Where the IS support was considered inadequate, the managers specified the IS functionality or capabilities that were required. The SODA/Cognitive mapping approach was then used to bring about a shared and negotiated position among the top management team regarding the strategic goals and the IS needed to support the attainment of those goals.

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Thus, evolving the IS strategy with the top management team was carried out in the following manner:



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- a. Group forums with the operational managers.

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- b. Group development of an organisational core process reference model (see Figure 3).
- c. Development of more detailed process models for each of the major business process steps (as illustrated in Figure 4).

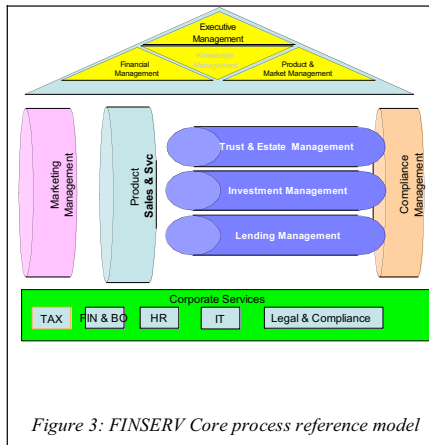


Figure 4: Example VAC deconstruction

2. Semi-structured interviews with the operational managers:
  - a. Identification of major process and systems inefficiencies.
  - b. Identification of major process and systems opportunities.
3. Determination of a broad list of systems needs to increase the operational efficiency of the organisation.

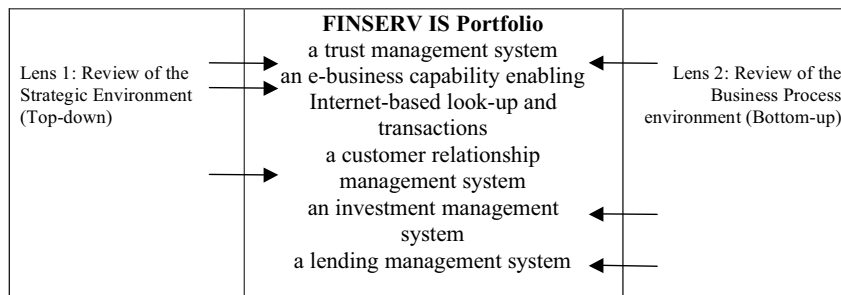
The output of Lens 2 provides an indication of a range of systems that are required by the organisation to ensure efficient and effective operation of these processes. Specifically, the major IS opportunities identified from the bottom-up perspective were the need for:

- a trust management system;
- an investment management system; and
- a lending management system.

### ***Output from Dual Lens approach in FINSERV***

The above method was applied in FINSERV in an attempt to determine an appropriate IS portfolio for the company. The output of the Dual Lens approach employed in this SME resulted in both the identification of the major systems opportunities determined from a strategic review of the business and those determined from an operational or process-oriented review of the business.

Combining the output from the above two processes provided a broad list of Information Systems that were required to address both the strategic and operation requirements of FINSERV. Specifically, the future IS Portfolio requirements can be seen as follows:



**Figure 5: The Information Systems portfolio for FINSERV derived from the Dual Lens Information Systems Strategy Formulation Method for SMEs**

While the two lenses are focussed on the same issue, that is, determining the IS needs of the organisation, they give, in fact, different views of the same problem. The two lenses or perspectives, then, give two complementary views of the IS needs of the organisation. The value of having two complementary views is seen in the application of the Dual Lens approach to FINSERV. Although one system was identified by both lenses or perspectives, generally speaking the different approaches of each lens led to the identification of different systems. Specifically, the need for a trust management system was identified by both lenses. In addition to that system, Lens 1 identified an e-business capability and a customer relationship management system as required information systems. Lens 2 identified the need for an investment management system and a lending management system in addition to the trust management system. Thus the combined analysis gave a much more complete picture of IS needs than one or the other lens would have given alone.

### **Post portfolio selection**

As mentioned in the introduction of this paper, we are attempting to develop an appropriately simple, but effective method for determining an IS strategy appropriate to the needs of SMEs. While the above discussion has focused on the determination of a broad list of systems that are required to address both the strategic and operational requirements of the organisation, to complete the information systems strategy, a business case consisting of a business rationale for the information systems, together with a broad cost/benefit analysis, would need to be prepared for each proposed information systems investment.

Appropriately, the information systems strategy would then consist of the future information systems portfolio, the rationale for the choice of the information systems investments and a business case for each information system. A document consisting of the arguments for the information systems portfolio together with the business cases should then be presented to the board of the company for the necessary and appropriate decisions to be taken.

### **Discussion**

The goal of this research was to develop an IS strategy process that was simple enough for use by an SME organisation, yet robust enough to allow for the selection of enterprise-wide IS solutions that would be aligned with both an organisation's strategic goals and their business process environment. The Dual Lens approach fulfils these requirements in the following manner:

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### ***No need for an existing business strategy***

While FINSERV had a rudimentary existing strategy with which to work, many SMEs lack a formal business strategy (Jocumsen, 2004). The Dual Lens approach anticipates this and is not dependent on the existence of an business strategy. In the case where a business does not have an existing strategy, the Dual Lens approach allows for the quick and easy determination of the set of strategic goals of the organisation by way of the SODA/cognitive mapping process described in Lens 1. Where an existing strategy is in place, the cognitive mapping process can be used to update, augment, or confirm the existing strategic issues facing the business.

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### ***Enterprise-wide analysis of IS investments***

While SMEs often lack enterprise-wide planning of IS investments, the Dual Lens approach encourages a reflective and considered enterprise-wide analysis of IS investments. Specifically, the combined analyses of the strategic and operational environments of the organisation avoids the fragmentary development of IS portfolios common among SMEs (Frost, 2003). Our Dual Lens approach determines that the IS selection not only becomes an integral part of the business strategy, but such investments also become strategically synchronised with business operations.

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### ***Simple and fast analysis***

In determining an IS strategy method for SMEs, it was imperative that our approach was simple and straightforward, and could be undertaken in a short period of time either by an external consultant or members of the organisation itself.

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The top-down strategic analysis of the business relies simply on the conduct of interviews with organisational managers and the development and discussion of cognitive maps, which have been well employed in the strategic management domain over many years (Ackerman & Eden 2005, Bryson et al 2004, Eden & Ackerman 1998). Our experiences indicate that this process can be undertaken either as a stand-alone activity, or, more usefully, as an addition to an organisation's strategic planning activities. Dependent of the number of senior managers in an organisation, we estimate this process can be completed in less than one week. Alternatively, this process can be facilitated by Group Decision Support tools and may be completed in 1-2 days.

The bottom-up process analysis is used to provide a view of the IS requirements for the efficient and effective operation of the organisational processes. It should be noted that the analysis of business processes is undertaken only at a high level to identify the major systems needs, rather than an extensive process analysis that would be required to undertake process improvement activities. Simple development of high level value added chains can be used to discuss systems inefficiencies and opportunities. Since SMEs tend to buy off-the-shelf solutions and alter their processes to fit the process logic inherent in the package, only a high-level analysis of each relevant business process is necessary. A more detailed process analysis would only be necessary for in-house system development. Dependent on the number of core processes in the organisation, we estimate that this process can be undertaken within 2-3 weeks.

In conclusion, as a contribution toward determining an effective IS strategy formulation method for SMEs, this paper has provided a description of a dual lens approach that results in a set of required Information Systems aligned to both the strategic and operational needs of an organisation. This dual lens approach has been trialled in FINSERV, a financial services company in Australia and has proved to be simple enough for SMEs to employ, while also being robust enough to allow for the selection of enterprise-wide IS solutions.

## Future work

As stated previously, this research-in-progress reports on the first phase of an action research project. The next phases of this research include an analysis of the impact of the Dual Lens method in FINSERV, and the ongoing revision and redevelopment of the Dual Lens method by way of multiple SME case studies.

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